

it is concluded that sugar, before arriving at the lungs, traverses the liver, where it undergoes a peculiar physiological modification. If a solution of grape sugar be injected into the superficial veins of a dog, it speedily passes off by the urine; on the contrary, if the solution of sugar be injected into the radicles of the portal vein, the sugar is no longer eliminated by the kidneys, but passes into the circulation, and is assimilated in the same manner as if taken into the digestive canal. Thus it is shown that the absorption of sugar by the portal system is a condition essential to its assimilation, since, if confined to the lacteals, the saccharine principle is abstracted from the influence of the liver, and is diverted directly into the general venous circulation, as takes place when it is injected by the jugular vein.

2d. *As to the absorption of Albumen by the Lacteals.*—Albumen injected into the general venous circulation soon appeared in the urine. If injected into the portal vein, it does not then appear in the urine, but is assimilated in the same manner as obtains with sugar.

3d. *Absorption of Fat.*—M. Bernard's previous researches have shown that fatty matters are not capable of admission into the lacteals, until an emulsion has been formed by the action of the pancreatic juice. Immediately that this emulsion has penetrated the lacteals, their aspect undergoes an entire change; instead of remaining transparent, like other lymphatics of other parts of the body, they assume a milk-white appearance, and owing to the transparency of the coats of these vessels, the course of the fatty matter may be followed from the intestine to the left subclavian vein, where it is diverted into the thoracic duct. It is not necessary that fatty matters should traverse the liver in order to their assimilation. M. Bernard has injected fatty emulsions into the jugular vein, but has not found that substance in the urine.

Thus the products of digestion may be distinguished with reference to absorption into two groups: *e. g.* 1st, fatty and albuminous matter absorbed by the lacteals, passing into the general circulation without having traversed the liver. The last proposition cannot be taken in so absolute a sense as the former, since experiment and microscopical examination demonstrate that fatty matters are absorbed both by the portal system and by the lacteals.—*London Medical Gazette*, January, 1851.

## MATERIA MEDICA AND PHARMACY.

8. *Early Effects following the Incautious Administration of Chloroform.*—Dr. BACOT stated to the Surgical Society of Ireland, December 7, 1850, that a few months previously he had been sent for, at about half past ten P. M., to see a young lady to whom chloroform had been administered, at twelve o'clock that day, for neuralgic pains of the face arising from carious teeth. She was a healthy dark-complexioned woman, and had, he understood, great repugnance to the inhalation of chloroform, to which she submitted but as a last resource, after having exhausted every other available means of ridding herself of those very distressing pains. From inquiries, he judged that from a draught and a half to two drachme had been administered before anaesthesia had been produced. At the period of Dr. B.'s visit, ten hours and a half after the administration of the chloroform, the symptoms under which she laboured were those of coma. She was lying on her left side, perfectly unconscious of all around her, her eyelids closed; on raising the lids, the eyeballs appeared much suffused, the pupils irregular, and scarcely acted upon by light. There was considerable congestion about her face, and her head felt hot; surface of the body and legs cold; pulse 90, thready, irregular, and intermittent. Up to seven o'clock her friends had not found much difficulty in rousing her, although she soon relapsed into the same state. Since that hour it had been much more difficult to dispel the stupor, and it was after many endeavours that Dr. B. was able to do so. When roused, however, she intelligently answered a question, but after some hesitation, as if endeavouring to collect her thoughts. She then almost immediately sank into the same comatose state, having first expressed herself to the

effect that she knew that she was dying. Two or three times during the day she had shown hysterical symptoms, crying when moved, and having the same thought of approaching dissolution before her mind. Her bowels (habitually constipated) had not been moved for three days. The apothecary, by whom this very powerful agent had been administered, visited her more than once through the day, as also in the evening, but did not take any step towards recovering the patient from the very urgent symptoms under which she was evidently fast sinking.

The general features of Dr. B.'s treatment consisted in the admission of fresh air, strong carbonate of ammonia to her nose, an occasional sprinkling of cold water over the face, stupes of hot water, containing an abundance of mustard, to the feet and legs. As soon as she was able to swallow, draughts of ether and aromatic spirits of ammonia were given her, and in about two hours, when the urgent symptoms were relieved, and some reaction had set in, strong tea was administered, which seemed very grateful, and by which she was much benefited. Previous to leaving her for the night, Dr. B. prescribed a draught containing one drop of croton oil, which affected her bowels in seven hours.

It is worthy of remark that, as she recovered the effects of the chloroform, the neuralgic pains returned to her face with great violence.

At Dr. B.'s visit next morning, she informed him that she had passed a wakeful night, and had suffered much from headache, which was confined to the right temple. This pain continuing through the day, two leeches were applied to her temple, from which she derived immediate relief, and was enabled for the first time to turn off her left side. She was much reduced in strength by this illness, and fainted at her first attempt to sit up in bed, where she was obliged to remain some days.—*Dublin Medical Press*, December 25, 1850.

9. *Effects of Chlorinated Hydrochloric Ether on Animals.*—M. FLOURENS read a note to the Academy of Sciences, January 13, in which he stated that he had found this agent to produce a powerful effect upon various animals. Dogs were placed under its full effect in about three or four minutes; all sensibility was completely destroyed, without any impairment of movement. Injected into the crural artery of a dog, both motion and sensation of the posterior extremities were lost, tetanic rigidity being produced. The effects observed were similar to those produced by chloroform and the essential oils; while the ordinary ethers, the fixed oils, naphtha, ammonia, and camphor, produced paralysis, with relaxation of the muscles, when injected by the arterics. The separation of the action of the nerve and of the muscle is thus effected, and a means of physiological analysis is furnished by the use of this ethereal compound.—*London Medical Gazette*, January, 1851.

10. *On the Inhalation of various Medicinal Substances.*—Dr. SNOW recently read a paper on this subject before the Medical Society of London.

He said that, previously to the discovery of etherization, medicines had rarely been inhaled, except with a view to their local action; but that there was no more reason to limit inhalation to palmarian diseases than to restrict the exhibition of medicines by deglutition to affections of the stomach and bowels. He admitted, however, that the proper administration of medicines by inhalation was attended with much greater difficulties than their exhibition in the usual way. The chief object of his communication was to point out the manner in which certain medicines could be inhaled. According to their different physical properties, they might be inhaled either with or without the aid of heat; when heat was employed, they might be inhaled either in the dry way, or with the vapour of water.\* The fumes expelled by heat from the extracts of opium, stramonium, and aconite were inhaled dry. Ammoniacum and other gum resins could be inhaled either in the same way, or with the vapour of water. Turpentine, creasote, camphar, iodine, and benzoic acid had been conveniently inhaled along with watery vapour, by placing the dose of medicine to be used in about half an ounce of water, which was heated by the

\* See *Medical Times*, December 7, 1850.

flams of a spirit-lamp. Several of these medicines had also been inhaled at the ordinary temperature of the air, without vapour of water, as also had ammonia, hydrocyanic acid, and chlorine. For drawing nitrate of silver into the larynx in the form of powder, the bowl of a pipe, with a glass tube fitted into it, was used. A grain of nitrate of silver, finely powdered with five grains of loaf sugar, was inhaled, by a strong inspiration, once a day. The sugar was recommended by a French author for diluting this agent, and had no advantage over lycopodium powder and similar substances, which, not being soluble in the mucus of the air passages, caused irritation.

At the hospital for consumption at Brompton, the physicians to which institution had invited Dr. Snow to assist in contriving and superintending the inhalation of medicines, opium had been inhaled by a considerable number of phthisical patients generally with marked benefit. Relief had also been obtained from several other medicines: but the inhalation of iodine and chlorine had apparently not been attended with any advantage. It might not be uninteresting to mention that, whilst four patients were inhaling chlorine twice a day, in the summer of 1849, two of them were attacked with cholera, they being the only patients in the hospital that were attacked with it at the time. As chlorine can be smelt exhaling in the breath for hours after the patient has inhaled it, he thought that this occurrence was opposed to the hypothesis that this diffusion of chlorine in the air had the power of limiting or preventing the spread of cholera. It was not his intention to treat of the inhalation of chloroform on this present occasion; but, having been speaking of pulmonary affections, he might state that he had never seen chloroform fail to relieve an attack of spasmodic asthma in any case in which it had been inhaled.—*Medical Times*, January 25, 1851.

11. *On the Physiological Effects of Picrotoxine, or the Active Principle of Cocculus Indicus.*—A paper on this subject was communicated to the Medical Society of London by Dr. ROURN.

The deduction from a number of experiments upon the different classes of vertebrate animals was, that picrotoxine produced symptoms very nearly analogous to those attendant upon hydrophobia.

Exp. 1.—A dose of 20 grains of picrotoxine was given to a dog. After 20 minutes it produced salivation, tremors, succeeded by opisthotonos, convulsions, and great difficulty of breathing, recovery taking place.

Exp. 2.—Thirty grains inserted under the skin of the axilla of a dog. Similar symptoms were produced, and in addition, bloody stools and urine. In three days the dog recovered.

Exp. 3.—40 grains were given to a dog. Retrograde and gyratory movements were produced. Tetanus killed the animal. Post-mortem examination displayed the brain in a state of congestion, particularly at its base, and having much bloody serum in the ventricles. The muscular irritability was destroyed.

Exp. 4.—60, 120, and 100 grains were successively introduced under the skin of a donkey. The two first doses not producing much effect, the third was given, which speedily induced salivation. The animal pawed the ground with his fore feet, ran backwards, and died in a tetanic condition.

Exp. 5.—10 grains were inserted under the skin of a rabbit. In 59 minutes the animal died.

Exp. 6.—4 grains in the nostril killed a pigeon.

Exp. 7.—5 grains given to a frog produced no effect until the expiration of fifteen minutes, at which time he was attacked with opisthotonos.

Exp. 8.—5 grains were thrown into the water in which a gold-fish was placed. The animal became much excited, and leaped from the water two or three times.

The author drew attention to the circumstance of the effects of the poison simulating those produced by the gradual removal of the cerebellum and corpora quadrigemina, and to the fact of an increase in the animal temperature. No coma occurred in any of the above cases.—*London Medical Gazette*, January, 1851.

12. *On Iodognosis.*—M. DORVAULT has published a series of researches on the chemical, therapeutical, and medical properties of iodine. To these, as embracing the entire knowledge of all the properties of that substance, he has given the name of iodognosis, *iodognosie* (from *ἰδής*; and *γνῶσις*).

We here submit an abstract of the medical portion of these researches, from the *Gazette Médicale de Paris*:—

Iodine, as a therapeutic agent, according to M. Dorvault, is unimportant; it is to its combination as *iodides* that its medical value is due. Even when introduced alone into the system, its therapeutical effects are to be attributed to its combination with the alkalies which exist in the fluids of the body. Under either circumstances the terms *iodic medication* express the same fact. Iodide of potassium is taken by M. Dorvault as the type of iodides.

*Physiological Action of Iodides.*—Iodides belong to that class of therapeutic agents to which M. Dorvault gives the name of *chemico-catalytic*, and form its most striking representative. This proposition is founded on the following facts: If the animal fluids (blood, lymph, semen, milk), or their proteic elements (albumen, fibrin, casein), be subjected to the action of a solution of iodide of potassium, it will be seen to prevent their coagulation and dissolve them. In producing this effect the salt remains unaltered; it acts, therefore, by virtue of what chemists have called the *catalytic* force. The same may be shown to have obtained when employed in certain pathological cases. The salt may be detected unaltered in the blood or urine, or other secretions.

These facts have been observed by many other investigators, and all have found practically that iodide of potassium promotes secretion, increases the functions of the mucous glands of the alimentary canal, and of the liver, kidneys, skin, pancreas, parotid, &c.

Iodide of potassium is rapidly eliminated from the animal fluids. Dr. Soharlaa (of Stettin) found that a patient, to whom he gave 53 grammes daily, eliminated 51 grains by his urine. The five grains lost were accounted for by the elimination of this salt by the saliva, sweat, and tears. Dr. Kramer satisfied himself, from his experiments, that six days sufficed for the complete elimination of this salt after its exhibition during 50 days. The researches of Dr. Marchal, at Val de Grace, also prove the rapid passage of iodide of potassium by the urine.

Iodine introduced into the system has been separated by the action of alkalies on the blood.

*Special Action of Iodides.*—The accidental or consecutive action of iodides has often been mistaken for their primary or efficient action. Some physiologists have considered iodine as a stimulant, others as a contra-stimulant. M. Dorvault observes that neither view expresses the exact truth. He admits a certain degree of general constitutional excitement under its employment; also that, in severe pains of the bones and other tumours, the action of iodine is sedative, by allaying pain. But in both these cases the stimulation and the sedative action are the consequence, not the cause, of the beneficial therapeutic agency of the remedy.

A third opinion, that iodine is alterative, M. Dorvault regards as nearer the true explanation, but as insufficient in fact, as the medicinal influence of the iodides is often seen after the first dose, therein differing from alteratives. M. Dorvault admits, however, the alterative action of some substances in which iodine exists in minute quantities,—*e. g.*, sponge, cod-liver oil, &c.

M. Dorvault also considers the purely chemical theory of the action of iodine as incorrect; his own opinion being, that the medicinal virtue of the iodides consists in their power of dissolving or further liquefying the *humours* of animal bodies, of separating their constituent or proteic elements, and disposing these to the formation of new products, such as coagula, false membranes, and pathological concretions: that the iodine and the potassium united both concur in the production of this result, by a special and peculiar chemico-physiological power which iodides possess of liquefying the fibrine of the blood without destroying the globules; while potash, ammonia, and other substances, dissolve the blood in all its parts.

*Therapeutic Action of Iodine. The pathological states in which it is employed.*—Goitre, ecrofula, syphilis, skin diseases, white swelling, caries of the vertebrae, tinea mesenterica, rickets, leucorrhœa, amœorrhœa, and chlorosis, cancer, cachexies, dropsy, poisoning, tumours, rheumatism, various chronic diseases, hypertrophy. These are the forms of disease in which, M. Dorvault observes, the administration of iodine is indicated.—*London Medical Gazette*, January, 1851.

13. *New preparation of Phosphate of Iron.*—Dr. ROUTH recently exhibited to the Medical Society of London two specimens of phosphate of iron dissolved in metabasic phosphoric acid—one in a solid, the other in a fluid state. The compound was prepared by adding as much phosphate of iron as the metabasic phosphoric acid in a boiling state would take up, and allowing it to cool. The proportions would be found, as nearly as possible, two of acid to one of the phosphate. The solution obtained is of a semi-transparent, greenish or slaty hue. If exposed to the air for a day, it hardened; but mixed with liquorice powder or flour, it could be made up at once into pills. The compound was soluble in any proportion of water, and free from any nauseous,icky taste. Dr. Routh had not analyzed it, and could not assert whether it was simply a solution of the phosphate in the acid, or a new superphosphate that was formed. He had given it largely. It appeared to him to be better adapted for and more speedy in bringing about a cure, than other preparations of iron, in some cases of anæmia and debility, brought on by venereal or other excesses, overstudy, and other depressing diseases; in each there was a prevalence of nervous symptoms, and a large quantity of phosphates voided by the urine. It seemed to act on the same principle as cod-liver oil, i. e., as the latter might be considered to supply the amount of carbon necessary for combustion directly to the lungs, thereby checking the drain upon the system, and allowing it to rally from its hectic state; so he supposed the present remedy supplied directly to the brain the amount of phosphorus necessary, to the undue diminution of which the nervous disorder was probably owing. The medicine did not gripe or constipate. He gave it in doses of j or ij grains three times a day.—*Medical Times*, January 25, 1851.

## MEDICAL PATHOLOGY AND THERAPEUTICS AND PRACTICAL MEDICINE.

14. *The Chemistry of Tubercle and the Special Pathological Anatomy of Tuberculosis.*—HENRY ANCELL, Esq., in his interesting lectures on Blood diseases, now in course of publication in the *Medical Times*, makes the following interesting remarks on the chemistry of tubercle, and the special pathological anatomy of tuberculosis:—

“The history of tubercle comprised in my two former lectures contains indubitable proof that this anatomical element of disease is a substance *sui generis*. Its physical, microscopical, and chemical characters show that it differs from every educt or product of nutritious or healthy secretion or excretion, and from all the educts or products, structural or amorphous, of ordinary inflammation. It differs from every other morbid product, non-malignant, malignant, or parasitical. It is essentially neither serum, pus, coagulable lymph, albumen, fibrine, nor any particular texture. At the same time, it is manifestly derived from the blood in an unhealthy condition, and the characters of the product and those of the morbid blood have certain relations which indicate very satisfactorily that the one depends upon the other. The morbid liquor sanguinis, and the deficient and perhaps structurally defective red corpuscles of the blood, are the analogues of the amorphous stroma and defective cells of tubercle; the vitiated albuminous constituent of the plasma is probably the analogue of the caseous constituent of tubercle and even of tuberculous and scrofulous pus; the low vitality of the blood indicated in my diagram is the analogue of the comparatively inorganic quality of the tuberculous product and of the very low degree